

## **ABSTRACT OF THE DISCLOSURE**

A base station transmitter having a digital predistorter and predistortion method is disclosed. The predistortion is accomplished by delaying a digital input signal, predistorted by a predistortion unit, for a predetermined time. A coefficient of a non-linear characteristic model of a power amplifier is generated using a digital output signal, converted from an amplified output signal of the power amplifier, and the delayed digital input signal. A reference signal is randomly generated to produce a predistortion model having a characteristic opposite to the non-linear characteristic of the power amplifier. A predistortion error function is extracted by subtracting the reference signal and the non-linear characteristic model of the power amplifier, after the produced coefficient is applied to the model. A coefficient of the predistortion unit is controlled adaptively using the predistortion error function. Thus, the present invention increases a precision of predistortion, the linearity of the base station transmitter, and the performance of a base transceiver system.